









## Opening the Device



- Before opening the device, touch a grounded object to discharge any electrostatic charge.
- Avoid touching the PCB board directly.
- Turn power off and disconnect all leads before opening the device.

In order to change the jumper settings of a specific input, first open the device by prying off its back, using the blade of a flat-bladed screwdriver. The insertion points for the screwdriver are located on both sides of the module.

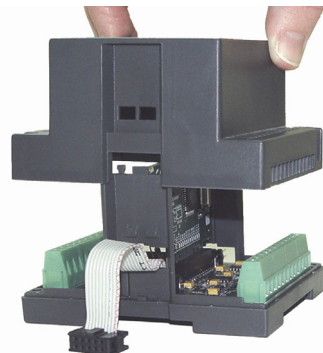
1. Open the first side of the device by inserting the blade between the 2 plastic moldings as shown below, then gently pushing up.



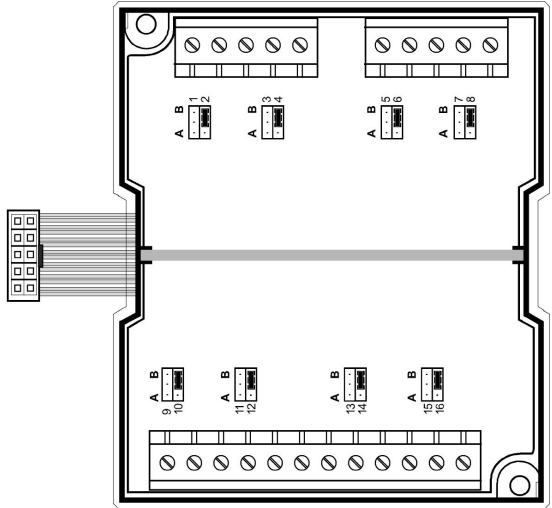
2. Taking care not to damage the cable, open the other side of the device by inserting the blade where shown below, then gently pushing up.



3. Gently remove the top of the device as shown.



4. The jumpers are shown at right. Change the jumper settings as required, in accordance with the tables shown on the next page.



## Jumper Settings

The tables below show how to set a specific jumper to change the functionality of a specific input. To open the device and access the jumpers, refer to the instructions beginning on page 5.

**Caution** ■ Incompatible jumper settings and wiring may severely damage the device.

	Jumper #	Voltage*	Current
<b>Input 0</b>	2	A	B
<b>Input 1</b>	4	A	B
<b>Input 2</b>	6	A	B
<b>Input 3</b>	8	A	B
<b>Input 4</b>	10	A	B
<b>Input 5</b>	12	A	B
<b>Input 6</b>	14	A	B
<b>Input 7</b>	16	A	B

\* Default factory setting.

## IO-AI8 Technical Specifications

Max. current consumption	40mA maximum from the adapter's 5VDC
Typical power consumption	0.2W@5VDC
Status indicator (RUN)	Green LED: —Lit when a communication link is established between module and OPLC. —Blinks when the communication link fails.

### Analog Inputs

Number of inputs	8 (single-ended) See Note 1.
Input range	0-10V, 0-20mA, 4-20mA. See Note 1.
Input type	Either Normal or Fast mode, according to the filter type selected in software settings
Conversion method	Voltage to frequency
Normal mode	
Resolution at 0-10V, 0-20mA	14-bit (16384 units)
Resolution at 4-20mA	3277 to 16383 (13107 units)
Conversion time	100mSec minimum per input
Fast mode	
Resolution at 0-10V, 0-20mA	12-bit (4096 units)
Resolution at 4-20mA	819 to 4095 (3277 units)
Conversion time	25mSec minimum per input
Input impedance	>400K $\Omega$ —voltage 500 $\Omega$ —current
Isolation	None
Absolute maximum rating	$\pm$ 15V—voltage $\pm$ 30mA—current
Linearity error	0.04% max of full scale
Error limits	0.4% of input value
Status indicators (OUT OF RANGE)	Red LEDs—Lit when the corresponding input is receiving current or voltage in excess of the input range. See Note 5.

### Environmental

Operating temperature	IP20/NEMA1 0° to 50°C (32 to 122° F)
Storage temperature	-20° to 60°C (-4 to 140° F)
Relative Humidity (RH)	5% to 95% (non-condensing)
Dimensions (WxHxD)	80mm x 93mm x 60mm (3.15 x 3.66 x 2.362")
Weight	150g (5.3 oz)
Mounting	Either onto a 35mm DIN-rail or screw- mounted.

### Notes:

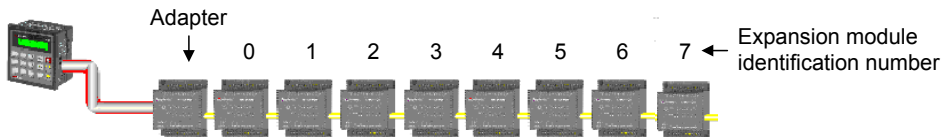
- Each input may be set as either voltage (0-10V), or current (0-20mA, 4-20mA) via wiring, jumper and software settings.
- The voltage or current value of analog inputs can also indicate faults, as shown in the table below.

Value: 12-bit (Fast mode)	Value: 14-bit (Normal mode)	Input Value Deviates:
-1	-1	Slightly <b>below</b> the input range.
4096	16384	Slightly <b>above</b> the input range.
32767	32767	Greatly <b>above or below</b> the input range.

## Addressing I/Os on Expansion Modules

Inputs and outputs located on I/O expansion modules that are connected to an OPLC are assigned addresses that comprise a letter and a number. The letter indicates whether the I/O is an input (I) or an output (O). The number indicates the I/O's location in the system. This number relates to both the position of the expansion module in the system, and to the position of the I/O on that module.

Expansion modules are numbered from 0-7 as shown in the figure below.



The formula below is used to assign addresses for I/O modules used in conjunction with the OPLC.

X is the number representing a specific module's location (0-7). Y is the number of the input or output on that specific module (0-15).

The number that represents the I/O's location is equal to:

$$32 + x \cdot 16 + y$$

Examples

- Input #3, located on expansion module #2 in the system, will be addressed as I 67,  
 $67 = 32 + 2 \cdot 16 + 3$
- Output #4, located on expansion module #3 in the system, will be addressed as O 84,  
 $84 = 32 + 3 \cdot 16 + 4$ .

EX90-DI8-RO8 is a stand-alone I/O module. Even if it is the only module in the configuration, the EX90-DI8-RO8 is always assigned the number 7.

Its I/Os are addressed accordingly.

Example

- Input #5, located on an EX90-DI8-RO8 connected to an OPLC will be addressed as I 149,  $149 = 32 + 7 \cdot 16 + 5$

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